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## BOOK REVIEWS

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B. P. M. Hyland & T. Whiffin. 1993. *Australian Tropical Rain Forest Trees*. Accompanying Leaf Atlas by D. C. Christophel and B. P. M. Hyland, to be ordered from CSIRO Information Services, P.O. Box 89, East Melbourne, Victoria 3002, Australia (Fax: 613-419-0459). ISBN 0-643-05403-0 (set). Price: \$A195 in Australia, or U.S. \$195 outside, plus shipping and handling (\$A20 within Australia, U.S. \$25 outside Australia).

The *Australian Tropical Rain Forest Trees*, an interactive identification system, consists of several components. The main part is the computer-based key, which is supplied in two versions, MS-DOS and MacIntosh. These disks are accompanied by three printed volumes. Volume 1 contains instructions for loading and using the computer keys, an explanation of characters used in the keys, and several lists: a list of genera with family name used in the key, a species list by code number, a species list by family, a species list by genus, a list of common names, and a glossary. Volume 2 provides a list of all included species, arranged alphabetically by family and genus, with a short description and discussion of additional features and distribution. Volume 3 is a leaf atlas, which presents excellent photographs of the leaf venation of all included species.

The main attraction of this identification system is the computer key. The key consists of nine separate files, which include lists of bark, leaf, flower, fruit, and seedling characters, families treated, list of characters used, and a list of the remaining characters. For identification one simply indicates which of the listed character states are present on the specimen to be identified. The computer eliminates from consideration all taxa in which the characters are lacking and in this way the pool of possible species becomes smaller. At any time one can check the list of remaining species and determine which characters have been scored as present. This type of key has several advantages over the traditional keys found in floras and revisions. One advantage is that characters can be scored in any sequence. Any character may be used as a starting point. The absence of a key to families and the presence in the key of easy to

observe vegetative features (such as leaf position, presence of domatia) make the key very user-friendly. The brief descriptions and additional features listed in Volume 2 enable the user to confirm or narrow down identifications in cases where following the computer key resulted in a few possible identifications. It is also possible to limit the pool of species by including only species from a particular area (the area covered by the flora is divided into three regions), or only species from a particular family. Another option is to list all the features of a particular species, a sort of identification in reverse.

This entire identification package is developed for anyone wishing to identify Australian rain forest trees, not solely botanists. I have used the key on several herbarium specimens without using bark or seedling features. I found the key a pleasure to use. Frequently the key leaves one with a handful of possible identifications, but in that case the leaf atlas and the additional notes listed in Volume 2 are very helpful. Also, when left with a few possible names, it is relatively easy to compare the specimens with herbarium material. The entire process of identifying is quick and easy. However, even with this key, identification becomes difficult when the specimens are poor. As pointed out in the instructions, not all features are of equal value. For instance, leaf margins entire or toothed is a more reliable character than length/width ratio of the leaves. Occasionally it is difficult to choose between character states; for instance, do Lauraceae have one perianth whorl or two similar perianth whorls? Because each choice seems equally possible, the authors scored Lauraceae as having both character states; such safeguards make seemingly difficult choices easy to make. Still, because of the enormous amount of information included in the key, one can expect some minor problems, in spite of the extensive testing to which the key was subjected. If errors are found, they will be relatively easy to correct, and updated versions of the key can be sent to the users.

With a price of U.S. \$200, this identification system will be too expensive for most individuals and will largely be bought by institutional libraries. Upon request these institutional users can receive permission to place up to ten copies of the key on PCs of staff members. Time will tell if this is ad-

equate; having the key available only on a PC in the library is clearly not practical. Very few institutions are networked to the degree that one copy is accessible to all connected users, although that seems the preferred solution.

The three hard-copy volumes are attractively produced and seem free of errors. I only wish that author names had been added to the species descriptions and diagnoses in Volume 2. This volume will probably be the most intensively used of the three, and having the author names included here would have been very practical.

I strongly recommend this publication to anyone interested in Australian rain forest trees. Its key and the photographs of leaf venation are outstanding features, and I think this publication offers the nonbotanist a realistic possibility of identifying Australian rain forest trees. My only question to the authors: When can we expect a treatment for the rest of the world?—Henk van der Werff, *Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A.*

*Flora of Australia*, Vol. 50, Oceanic Islands 2. 1993. Australian Government Publishing Service, GPO Box 84, Canberra, ACT 2601. xxvi + 606 pp. ISBN 0-644-14446-7 (paperbound version), \$A44.95.

The fourteenth chronological volume published in the *Flora of Australia* series is somewhat of a departure from its predecessors. An editorial decision early in the project's planning resulted in the exclusion of the several groups of islands surrounding the Australian continent from the flora proper, and the compilation of separate accounts for the floras of these lands. The present volume details the vegetation and flora of a diverse group of islands, which includes Cocos Island, Christmas Island, Cartier Island, and the Ashmore Reef National Nature Reserve off Australia's northwestern coast, the Coral Sea Islands Territory to the east and northeast, Macquarie Island, which is southwest of New Zealand, and Heard and McDonald Islands far to the southwest of the Australian continent. The companion volume 49 will contain florulas for Lord Howe and Norfolk Islands, the remaining islands.

Volume 50 includes approximately 500 species of vascular plants in 113 families. It contains one

new species, one new combination, two lectotypifications, and one neotypification, which are summarized in a short appendix. The organization of the main text is unusual. Each island group receives a separate summary of climate, geography (including a simple map), geology, vegetation, history (including botanical), use by wildlife, and bibliography, as well as a key to families and a useful table of species present, including an indication of endemics and introduced taxa. These occupy only the first 62 pages of the book. The background summaries are brief, but relatively complete, although given the small sizes of the land masses involved and relative simplicity of the vegetation, some mapping of the major vegetational types for at least the larger islands should have been included.

The bulk of the volume contains a combined treatment of the taxa within each family that occur on any of the islands. This includes keys, detailed descriptions at all taxonomic levels, synonymy, distributional summaries, miscellaneous notes on each taxon, and a citation of representative specimens. Each family also has a separate citation of pertinent taxonomic literature. This unique organization results in a volume that is taxonomically cohesive, with the species easily located in the text, while simultaneously allowing for convenient access to information specific to a particular island. A table summarizing the species shared by different islands and the percentage of each island's flora also present on the continent would be useful once the remaining islands have been treated in the companion volume 49.

Eleven contributors wrote the text for volume 50. As has been the case with previous volumes in the *Flora of Australia* series, the information in the present volume is wonderfully detailed and easy to use. The indented keys are clear and well constructed. The descriptions are of parallel construction within each group and use clear terminology. There are a number of abbreviations and contractions throughout the text, which are summarized at the end of the volume, and which do not detract from its ease of use. The descriptions of vegetation and taxa are beautifully supplemented with a number of graphics. There are 42 black-and-white plates illustrating about 100 species, the work of three talented artists. A beautiful color cover and frontispiece by Diana Boyer illustrates *Pandanus tectorius*. There are also 55 photographs (by 11 photographers) of vegetation types and species that are uniformly excellent in clarity and reproduction.